

Commissioners
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554



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Dear Commissioners,

I am an electrical engineering professor with a specialty in RF communications systems, and a long time amateur radio operator.

I recently became aware of concerns that Theodore Rappaport made extensively clear in a [letter of November 15, 2018](#). Ted is entirely correct in his concern for national security, as well as for the open nature of amateur radio. Amateur radio is a hobby for experimenters, inspiring and growing them into engineers and scientists, as it did for me. Closed protocols should not be allowed, because they make experimentation practically impossible. Codes and ciphers have been wisely disallowed in the past. Proprietary protocols enable data to be sent that is obscured and is a national security concern. Monitoring will be very expensive, and will add significantly to the cost American taxpayers pay to keep the NSA doing its job.

If larger bandwidths are allowed without first addressing the issue of openness and national security, it will be politically almost impossible to address afterwards. There will be just too many people who are financially invested in proprietary equipment, and too many manufacturers producing it, and if it actually comes to pass after the bandwidth is opened up, it will be painful to a larger number of amateurs and manufacturers attracted by the higher bandwidth to invest in proprietary protocols.

In summary, I heartily agree with Dr. Rappaport's astute observations. Please read them with careful consideration. Thanks.

Sincerely yours,

Henry Robinson (Rob) Frohne, Ph.D., P.E.
KL7NA
Professor